SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Preliminary Draft Staff Report

Proposed Amendments to:

Rule 403 – Fugitive Dust

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Deputy Executive Officer
Planning, Rule Development and Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Planning, Rule Development and Area Sources
Laki Tisopulos, Ph.D., P.E.

Director of Area Sources
Planning, Rule Development and Area Sources
Lee Lockie

AUTHORS:
Michael Laybourn - Air Quality Specialist
Shams Hasan – Air Quality Specialist
Mary Woods, Ph.D. – Air Quality Specialist

Technical Assistance:
Shah Dabirian - Air Quality Specialist, Socioeconomic Analysis
Kathy C. Stevens - Air Quality Specialist, CEQA Analysis

REVIEWED BY:
Tracy A. Goss, P.E., Program Supervisor, Particulate Matter Strategies
District Counsel
Frances Keeler - Senior Deputy District Counsel
John Olvera – Senior Deputy District Counsel

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CYNTHIA VERDUGO-PERALTA
Governor's Appointee

DENNIS YATES
Councilmember,
Cities of San Bernardino County Representative

EXECUTIVE OFFICER:
BARRY R. WALLERSTEIN, D.Env.

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EXECUTIVE SUMMARY

In an effort to improve air quality in air basins in non-attainment with State and federal ambient air quality standards and to comply with federal mandates, Senate Bill (SB) 700 was signed into law on September 22, 2003 to reduce emissions from the agricultural sector. Under SB 700 requirements, agricultural operations are no longer exempt by State law from air quality permitting and these sources are also required to implement Best Available Control Measures (BACM) to reduce fine particulate matter also referred to as fugitive dust, or PM10 (particulate matter with an aerodynamic diameter of 10 microns or less). Presently, fugitive dust control programs are already in place for some agricultural sources (i.e., crop farmers and dairies); however, amendments to Rule 403 (Fugitive Dust) are proposed to require BACM for the remaining confined animal facilities in accordance with SB 700 requirements. Additionally, an amendment to Rule 403 is also proposed to address an implementation issue associated with weed abatement activities. Rule compliance dates that have already passed are also proposed for removal and clarification that wind-monitoring equipment must be located on-site in order to potentially qualify for a high-wind exemption from the existing Rule 403 property line standard is also proposed.

Confined Animal Facilities

An existing AQMD program presently implements BACM requirements for agricultural crop producers (Rule 403) and dairy facilities (Rules 1127 and 1186), but exempts other agricultural operations. Proposed Amended Rule (PAR) 403 will remove the existing exemption for agricultural operations directly related to the raising of fowl and other confined animals. These operations are referred to as confined animal facilities. PAR 403 would require confined animal facilities, other than dairy farms, to implement additional measures contained in Table 4 BACM requirements. By definition, the confined animal facilities subject to proposed Rule 403, Table 4 requirements include horse, sheep, goat, swine, beef cattle, rabbit, chicken, turkey, or duck facilities where the feeding is accomplished by means other than grazing. The specific BACM (now referred to as conservation management practices) are for the following source categories: manure handling, feedstock handling, disturbed surfaces, unpaved roads, and equipment parking areas. Under the proposal, these provisions become effective January 1, 2006 to comply with the SB 700 timetable of requirements and to allow for a comprehensive education / outreach program on specific conservation management practices required for confined animal facilities. Estimated emission reductions are approximately 0.13 ton per day with an estimated cost-effectiveness of $4,800 per ton of PM10 reduced.

Weed Abatement Activities

The most recent amendments to AQMD fugitive dust rules (Rules 403, 403.1, and 1186) were adopted in April 2004 to implement 2003 AQMP control measure BCM-07 and to conform to the latest U.S. Environmental Protection Agency (US EPA) guidance to further reduce PM10 emissions. An additional amendment to Rule 403 is proposed to address an implementation issue associated with weed abatement activities resulting from the April 2004 amendments. Specifically, the proposal allows discing of weeds without the use of water, provided that the agency issuing the weed abatement order makes a determination that watering is not feasible and other effective control measures are used during and after the discing activity. The proposed amendment would result in approximately 0.015 to 0.018 ton

of PM10 emissions foregone per day under a scenario that presumes that no water is applied prior to conducting any weed abatement activities.

REGULATORY BACKGROUND

The South Coast Air Quality Management District (District) monitors ambient air quality for criteria pollutants (ozone, carbon monoxide, particulate matter, lead and sulfate) at 32 locations within southern California's South Coast Air Basin (Basin) and the Coachella Valley portion of the Salton Sea Air Basin (SSAB). Pollutant concentrations exceed federal and/or state standard(s) for suspended particulate matter (PM10 and PM2.5)[1] (AQMP, 2003). The US EPA has designated both Basin and the SSAB as "serious" non-attainment areas for PM10 and the Basin, individually, is also designated by US EPA as non-attainment for PM2.5. Under the federal Clean Air Act (CAA) both the Basin and Coachella Valley portion of the SSAB are required to attain the PM10 National Ambient Air Quality Standards (NAAQS) by January 1, 2006. Studies indicate that approximately 20 to 40 percent of ambient PM10 concentrations are a result of soil dust entrainment, commonly referred to as fugitive dust. Higher soil dust contribution to ambient PM10 levels have been documented in the inland portions of the District.[2]

The proposed amendments to Rule 403 address two major concerns and these are addressed below.

Confined Animal Facilities

In an effort to comply with federal mandates and to improve air quality in air basins designated as non-attainment with State and federal ambient air quality standards Senate Bill (SB) 700 was signed into law on September 22, 2003 to reduce emissions from the agricultural sector. SB 700 amended the California Health & Safety Code as it applies to each air district that is designated a serious federal non-attainment area for an applicable ambient air quality standard for particulate matter. Specifically, as of January 1, 2004, each air district designated as non-attainment for particulate matter must adopt, implement, and submit for inclusion into the state implementation plan, a rule or regulation requiring Best Available Control Measures (BACM) and Best Available Retrofit Control Technology (BARCT) for agricultural practices. PAR 403 will implement BACM requirements for confined animal facilities to meet the statutory requirements of SB 700.

Weed Abatement Activities

In 1976, Rule 403 included a provision that prohibited fugitive dust from any earth-moving, transport, handling, construction or storage activity, or unpaved road from remaining visible in the atmosphere beyond the property line of the emission source. Rule 403 was amended in September 1992 to comply with the newly established 1990 CAA requirements for PM10. Based on US EPA guidance for PM10 non-attainment areas, the 1992 amendments included a list of required control measures, deletion of a high-wind exemption, and special requirements for large operations. Because the 1992 amendments represented a significant change from the 1976 Rule, the adoption resolution included a requirement for AQMD staff

[1] PM10 refers to Particulate Matter with an aerodynamic diameter of 10 microns or less and PM2.5 refers to Particulate Matter with an aerodynamic diameter of 2.5 microns or less.
[2] Particulate Matter Technical Enhancement Program (PTEP), South Coast Air Quality Management District, 1996.

to report to the Governing Board in July of 1993 on the status of Rule implementation efforts and any implementation issues.

During the 1992 Rule evaluation process, agencies responsible for requiring weed abatement activities indicated that many clearing activities are conducted at the property line of affected parcels to create fire breaks. The agencies indicated that it was thus, quite possible for fugitive dust emissions from weed abatement activities to cross property lines and violate Rule 403 provisions. In response to these concerns and due to the importance of these activities for fire protection purposes, a limited Rule 403 exemption was proposed for weed abatement activities provided that mowing that maintains weed stubble on a site was conducted. Mowing was encouraged because the activity does not disturb the soil and would leave the site resistant to wind driven fugitive dust.

The amendments recognized that mowing is not always feasible due to physical obstructions, rocks, or fire hazard conditions by allowing discing for weed abatement activities provided that the agency issuing the weed abatement order made a written determination that mowing was infeasible for technical reasons. In order to reduce the potential for windblown emissions from areas that had been either mowed or disced, the limited exemption included provisions that the site would still be subject to the prohibition of visible dust emissions from crossing any property line when weed abatement activities had ceased. These limited exemption provisions were adopted in July of 1993.

In 2004, amendments were proposed to AQMD Rule 403 to conform to the latest US EPA guidance and to further reduce fugitive dust and the corresponding PM10 emissions. An amendment was adopted that required watering when conducting discing for weed abatement activities. This amendment was based on similar requirements for other fugitive dust sources (i.e., construction projects) as well as control programs developed for other PM10 non-attainment areas (i.e., Clark County, Nevada, Maricopa County, Arizona and the San Joaquin Valley).

Subsequent to adoption of the April 2004 Rule 403 amendments, agencies responsible for weed abatement raised technical issues regarding the feasibility of watering prior to discing for weed abatement. The primary concern included safety factors and the feasibility of water truck operation on sites with steep slopes or uneven terrain. It should be noted that similar concerns were expressed by the construction industry during the 1992 Rule 403 amendment process. In response to the construction industry concerns, the 1992 Rule 403 Table 2 control actions for earth-moving activities require watering as necessary to prevent visible emissions … "unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors". Accordingly, AQMD staff has proposed to amend existing Rule 403 weed abatement provisions to provide agencies greater flexibility in controlling fugitive dust emissions during and after discing operations in areas where watering prior to discing is not feasible while still implementing all other feasible controls.

PURPOSE AND APPLICABILITY

The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions. Rule 403 is applicable to any activity or man-made condition capable of generating fugitive dust.

LEGAL AUTHORITY

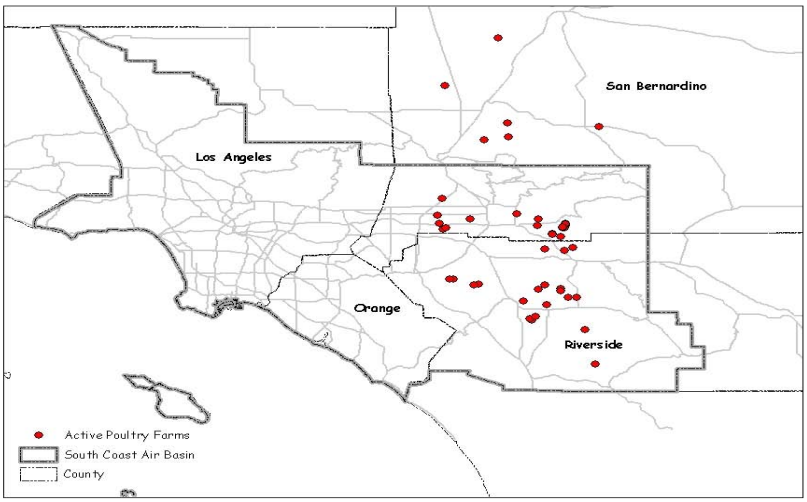
The AQMD obtains authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, and 40001.

AFFECTED INDUSTRY

Confined Animal Facilities

Based on information from the California Department of Food and Agriculture (CDFA) most confined animal facilities have moved outside of the jurisdictional boundaries of the District with the exception of dairy farms and poultry facilities. As mentioned, BACM is presently implemented at dairy farms through AQMD Rules 1127 and 1186. Accordingly, PAR 403 will primarily be applicable to poultry facilities and the few remaining other confined animal facilities discussed below. Based on available data from the Poultry and Egg Production Association (PEPA) there are 34 active laying-hen poultry facilities within the jurisdictional boundaries of the AQMD. In total, these facilities have approximately 8.4 million egg-producers, commonly referred to as layers. According PEPA, there are also seven confined animal facilities for pullets (also referred to as young hens, usually less than one year old).[3] Figure 1 presents the location of the poultry facilities within the South Coast AQMD.

Figure 1
Active Egg-Production Facilities



In addition to the laying hen facilities, information provided by the CDFA[4] indicates that there are two swine facilities, two sheep ranches, two facilities with goats (one for goat milk and one for goat meat), and two facilities that raise ducks within the jurisdictional boundaries

[3] Doug Kuney, Poultry and Egg Production Association, personal communication with Mike Laybourn, February, 2005.
[4] Dr. David Kerr, State of California, Department of Food and Agriculture, personal communication with Mike Laybourn, February 22, 2005.

of the AQMD that are anticipated to be subject to PAR 403 requirements. There are additional small confined animal facilities for these animals, but these facilities are expected to be below the proposed confined animal facility thresholds included in PAR 403.

Sources of fine particulate matter or fugitive dust at confined animal facilities include vehicular travel and windblown emissions from unpaved roads and parking lots, loading/unloading of material and windblown emissions from storage piles. Currently, Rule 403 subparagraph (g)(1)(A) exempts agricultural operations directly related to the raising of fowls or animals. Amending this exemption and requiring dust control actions at confined animal facilities will reduce fugitive dust and the corresponding PM10 emissions, thereby contributing to the Basin's attainment of the ambient air quality standards.

Weed Abatement Activities

Weed abatement activities are mandated by county agricultural commissioner offices and state, county, or municipal fire departments primarily for fire protection purposes. Authority to conduct these activities is granted under section 14876 of the California Health and Safety Code. Weed abatement orders are typically issued by the appropriate agencies listed above with a specified compliance date. Property owners can contract for the work to be completed or can wait for agency action. After the mandatory compliance date has lapsed, agency personnel inspect the properties for compliance. Non-compliant properties are scheduled for weed abatement and property owners are billed for the costs incurred by the agency. Information on areas disced and mowed by county agencies for weed abatement purposes are presented in Appendix E. As presented in Appendix E, county agencies also conduct weed abatement activities within the jurisdictional boundaries of individual cities. Figure 2 illustrates an example of weed abatement activities conducted on uneven terrain.

Figure 2
Disced Surface

SUMMARY OF PROPOSED RULE AMENDMENTS

Confined Animal Facilities

As mentioned, an existing AQMD program presently implements BACM for agricultural crop producers and dairy facilities, but exempts other agricultural operations. Proposed amendments to Rule 403 will remove the current exemption for agricultural operations referred to as confined animal facilities. A new definition for confined animal facilities has been developed based on the definition included in AQMD Rule 102 and includes horse, sheep, goat, swine, beef cattle, rabbit, chicken, turkey, or duck facilities where the feeding is by means other than grazing. Under the PAR 403 proposal, confined animal facilities (defined as sites with greater than 3,360 fowl or 50 or more animals, excluding dairy farms) will become subject to the general requirements in Rule 403, subdivision (d). Additionally, confined animal facilities, excluding dairy farms, will be required under PAR 403, paragraph (d)(6), to implement Table 4 BACM provisions (now referred to as conservation management practices or CMPs). Rule 403 BACM requirements are referred to as conservation management practices as United States Department of Agriculture (USDA) funding programs use the term conservation management practices and use of consistent terms will increase the likelihood for funding of air quality improvement programs including those for dust control. Dairy farms are not required to implement Rule 403 BACM requirements as these sources are presently subject to AQMD Rule 1127 and 1186 BACM requirements. A Rule 403 exemption is provided for dairy farms [subparagraph (g)(1)(A)] and for confined animal facilities less than one acre in size [subparagraph (g)(1)(B)]. As summarized in Table 1 and detailed in Table 4 of Appendix A, conservation management practices or CMPs have been developed for manure handling/management, feedstock handling, disturbed surfaces, unpaved roads, and equipment parking areas.

The manure handling CMPs are only applicable to commercial poultry ranches. The manure handling truck covering and manure spreading CMPs (Rule 403, Table 4, 1a and 1b) are based on typical dust control actions for crop producers. The coning and drying and frequent manure removal CMPs (Rule 403, Table 4, 1c and 1d) were obtained from "The City of Yucaipa Guidelines to Manure Management Plans" that were developed in conjunction with Ordinance 216.[5] While it is acknowledged that the manure handling coning and drying and frequent manure removal CMPs were developed primarily to reduce vector problems (flies) and abate odor impacts, implementation of these practices is also expected to reduce ammonia and certain VOC emissions.

The feedstock handling CMP was obtained from San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) Regulation 4550, adopted in May of 2004. The disturbed surface area, unpaved road, and equipment parking area CMP mirror SJVUAPCD Rule 4550 provisions for livestock facilities and are also similar to existing Rule 403 provisions for these sources at agricultural crop farms. Additionally, the access restriction portion of the unpaved road CMP is similar as University of California Cooperative Extension recommendations to prevent the spread of exotic Newcastle disease.[6]

[5] J. Wakoli Wekesa, Ph.D., Vector Ecologist, San Bernardino County Vector Control Program, April 8, 2002.
[6] Carol Cardona and Douglas R. Kuney, UC Cooperative Extension, Recommendations to Prevent the Spread of Exotic Newcastle Disease, undated.

Table 1
Summary of Proposed Rule 403 Table 4 Conservation Management Practices for Confined Animal Facilities

Source Category	Conservation Management Practices
Manure Handling (Only applicable to Commercial Poultry Ranches)	✓ Cover manure before transporting material off-site; and ✓ Spread manure before 11:00 and when conditions are less than 25 miles per hour; and ✓ Utilize the coning and drying manure management method; or ✓ Utilize the frequent manure removal method.
Feedstock Handling	✓ Utilize a sock or boot on the feedstock auger when filling feed storage bins.
Disturbed Surfaces	✓ Maintain 70 percent vegetative cover on vacant portions of the facility; or ✓ Utilize conservation tillage practices to maintain plant residues on-site if growing crops; or ✓ Apply dust suppressants (water, hygroscopic materials, or chemical stabilizers) in such concentrations and frequencies to maintain a stabilized surface.
Unpaved Roads	✓ Restrict access to private unpaved roads and ensure vehicular speeds do not exceed 15 mph; or ✓ Apply material with low silt content (i.e., asphalt, concrete recycled road base or gravel to a depth of four inches) to frequently traveled unpaved roads; or ✓ Treat unpaved roads with water, mulch, chemical dust suppressants to maintain a stabilized surface.
Equipment Parking Areas	✓ Apply water or chemical dust suppressants to maintain a stabilized surface; or ✓ Apply material with low silt content (i.e., asphalt, concrete recycled road base or gravel to a depth of four inches); or ✓ Reduce equipment parking area by at least 50 percent and treat the original disturbed surface area with vegetation, water that establishes a crust, or chemical stabilizers.

In order to provide flexibility to confined animal facilities, the majority of these CMPs are organized in a menu approach and operators can select the most appropriate CMP for individual facilities. These provisions become effective January 1, 2006 to comply with the SB 700 timetable requirements and to allow for a comprehensive education / outreach program on specific CMPs for confined animal facilities.

Weed Abatement Activities

Table 2 summarizes existing and proposed Rule 403 provisions related to weed abatement activities. A draft version of the proposed amended rule text is included in Appendix A.

Table 2
Existing and Proposed Rule 403 Provisions Related to
Weed Abatement Activities

Existing Rule 403 Provisions	Proposed Rule 403 Amendments
Clause (g)(1)(H)(ii) Discing is exempt from Rule 403 provisions where watering is used prior to initiating these activities and a determination is made by the agency issuing the weed abatement order that mowing is not feasible. The provisions this clause do not exempt the owner of any property from stabilizing disturbed surfaces that have been created as a result of the weed abatement actions through implementation of Rule 403 Table 1 control measures.	Clause (g)(1)(J)(ii) Discing is exempt from Rule 403 provisions where watering is used prior to initiation of these activities unless all of the following conditions are met: ✓ written documentation is provided to the Executive Officer upon request by the agency issuing the weed abatement order that clearly indicates why watering of a site prior to discing is not feasible; and ✓ wind speeds are less than 25 miles per hour during weed abatement activities; and ✓ measures, including, but not limited to, vehicle speed reduction, disc shrouds, or disc setting adjustments are used as necessary to prevent visible dust emissions from exceeding 50 feet from the source in any direction; and ✓ after weed abatement activities have ceased, the disturbed surface is stabilized to be resistant to wind driven fugitive dust or achieves a flat vegetative cover of attached or rooted vegetation or unattached vegetative debris of 50 percent or greater as determined by the flat vegetative cover test method included in the Rule 403 Implementation Handbook.

These proposed amendments allow greater flexibility in conducting weed abatement activities while still implementing feasible controls. Additionally, these amendments set a performance standard that prohibits visible emissions from discing for weed abatement from exceeding 50 feet from the emission source – a standard that is presently not included in the existing Rule.

Post Weed Abatement Stabilization

Rule 403 currently specifies that the weed abatement exemption provisions do not exempt the owner of any property from stabilizing, in accordance with Rule 403 paragraph (d)(2), disturbed surface areas which have been created as a result of the weed abatement actions. This rule text was added in conjunction with the April 2004 rule amendments, which were intended to clarify text added in 1993 that stated that sites subject to weed abatement activities were not exempt from the Rule 403 property line standard following the cessation of weed abatement activities. Rule 403 paragraph (d)(2) requires the implementation of Table 1 BACM for all fugitive dust sources. The most applicable Rule 403 Table 1 measures for weed abatement activities are contained in the Table 3 control measures for disturbed soils listed below.

Table 3

Rule 403 Table 1
Best Available Control Measures
(Applicable to All Construction Activity Sources)

Disturbed soil	07-1 07-2	Stabilize disturbed soil throughout the construction site; and Stabilize disturbed soil between structures	✓ Limit vehicular traffic and disturbances on soils where possible ✓ If interior block walls are planned, install as early as possible ✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes

As shown above, the Rule 403 Table 1 BACM list was developed primarily for construction projects. Accordingly, PAR 403 adds the Flat Vegetative Cover (FVC) test method to the Rule 403 Implementation Handbook to provide guidance as to what is considered a stabilized surface following weed abatement activities. The procedures for conducting a FVC determination are summarized below. This test method could be used by property owners to ensure compliance with Rule 403 long-term surface stabilization standards or could be used by AQMD compliance staff to mitigate a disturbed surface previously subject to weed abatement activities that would likely be subject to significant wind erosion.

Flat Vegetative Cover Test Method

The FVC test method was adapted from the United States Department Agriculture Natural Resources Conservation Service (USDA-NRCS) line transect method and is presently used in other serious PM10 non-attainment areas (i.e., Maricopa County, Arizona, Clark County, Nevada and the San Joaquin Valley) as a compliance tool for fugitive dust sources. The concept of the FVC test method is that undeveloped land with plant residue, clods, rocks, etc. will be much less likely to be subject to wind erosion when compared to a wide, level, unsheltered, isolated field with bare, smooth, loose, and non-crusted surfaces.

As described in Appendix B, persons using the FVC test method stretch a one-hundred foot measuring tape across a disturbed surface area. Observations are made at one foot increments and notes are made when vegetation (including dead vegetation that is firmly attached) and/or aggregates greater than one centimeter in diameter lie directly underneath the observation point. When 100 observations have been made, the total number of times a surface was counted as vegetated are summed. This total represents the percent of flat vegetation cover (e.g. if 50 positive counts were made, then vegetation cover is 50 percent). If the disturbed surface area is too small for 100 observations, as many observations as possible are made and the count of vegetated surface areas is multiplied by the appropriate conversion factor to obtain percent cover. For example, if vegetation was counted 30 times within a total of 50 observations, the vegetated surface observations (30) by are divided by the total observations (50) and multiply by 100 to obtain a flat vegetation cover of 60 percent. In order to be in compliance with the proposed Rule 403 amendment a site must achieve a

flat vegetative cover of attached or rooted vegetation or unattached vegetative debris of 50 percent or greater.

Wind Monitoring Equipment

Since 1993, Rule 403 exempted sources from the paragraph (d)(1) property line standard and the paragraph (d)(3) upwind/downwind PM10 concentration standard when wind gusts exceed 25 miles per hour (mph), provided that Rule 403 contingency measures are implemented and records of control actions are maintained. In response to Rule implementation issues associated with how wind speeds are to be documented, PAR 403 proposes to clarify that wind monitoring equipment must be located on-site, and operated and maintained in accordance with the Rule 403 Implementation Handbook standards.

EMISSIONS, EMISSION REDUCTIONS, COST-EFFECTIVENESS

The 2003 Air Quality Management Plan (AQMP) estimated PM10 emissions from fugitive dust sources at approximately 204 tons per day and the 2003 Coachella Valley State Implementation Plan (CVSIP) estimated PM10 emissions from Coachella Valley fugitive dust sources at approximately 29 tons per day. The following text describes the existing emissions inventory and the estimated affect on emissions associated with the amendments.

Confined Animal Facilities

Confined animal facilities range from ten to 40 acres based on AQMD staff site visits and limited information. Fugitive dust (PM10) emission sources at these sites include unpaved roads/parking areas, and windblown emissions from disturbed surfaces/open storage piles. In order to estimate emissions, it was presumed that each facility has one-quarter mile of unpaved road (subject to 10 vehicular trips per day) and two acres of disturbed surfaces. The unpaved road mileage corresponds with the size range for facilities (ten to 40 acres) and the vehicular activity is based on one daily feed truck trip and one egg or product collection truck trip and the daily worker trips. The disturbed surface area estimate is based on manure spreading areas as well as unpaved parking lots and vehicular storage areas. These mid-range assumptions are considered a source average and were applied to all facilities even though it is acknowledged that some confined animal facilities might have paved roads and parking areas. Using higher unpaved road traffic levels and disturbed surface area estimates at some confined animal facilities and lower assumptions for other facilities with paved surfaces would yield similar estimates for PM10 emissions from confined animal facilities.

Using these assumptions, PM10 emissions from fugitive dust sources at confined animal facilities are estimated at approximately 0.26 ton per day (see Appendix C). Because the PAR 403 CMPs contained in Table 4 represent a menu approach, confined animal facilities will implement a combination of practices to comply with the Rule. Using the assumptions listed in Appendix D, it is estimated that confined animal facilities will implement access restriction/speed control, gravel, vegetation establishment, and chemical stabilizer application to meet the Rule's performance standards and to comply with the Table 4 requirements.

Control efficiencies for these CMPs range from 30 to 90 percent.[7] A mid-range control efficiency of 50 percent was applied to the uncontrolled baseline inventory to estimate the PM10 emission reductions associated with PAR 403 at approximately 0.13 ton per day.

Cost-effectiveness is calculated by dividing the estimated compliance costs of a proposed regulation by the estimated emission reductions. Based on the cost information presented in Appendix D and the estimated 50 percent reduction in fugitive dust emissions from PAR 403 provisions, the cost-effectiveness of PAR 403 confined animal facility requirements is estimated at approximately $4,800 per ton of PM10 reduced. As presented in Appendix D, CMP costs include $400 for installation of speed control signs, $7,820 for treatment of one-quarter mile of unpaved roads, and approximately $100 and $5,340 for treatment of one acre of disturbed surfaces with vegetation and chemical stabilizers, respectively. The signage installation cost is annualized for an eight year period, gravel unpaved road treatments are annualized for three years and revegetation and chemical stabilizer treatments on disturbed surface areas are considered annual costs.

Weed Abatement Activities

The California Air Resources Board (CARB) emission factor for agricultural tilling[8] was applied to activity data provided by County agencies (Appendix E) to obtain an estimate of PM10 emissions from weed abatement activities. The agricultural tilling emission factor was considered appropriate for estimating emissions from discing for weed abatement as both activities use very similar implements. Appendix E also shows that counties implement weed abatement programs within individual cities. Based on this data, discing for weed abatement activities without the use of water have been estimated to generate approximately 0.03 ton per day (see Appendix E). Presuming a 50 percent reduction from watering sites subject to discing and an assumption that none of the acres currently subject to discing will be watered, the emissions forgone associated with the proposed Rule 403 amendment is estimated at 0.015 ton per day.

As mentioned above under the "Affected Industry" heading, weed abatement activities are also mandated by local governments (cities). In addition, these activities are conducted by private parties in response to city or county-issued weed abatement orders or in response to fire hazard concerns by individual property owners. Efforts were made to obtain weed abatement activity data from local city governments; however, after contacting ten jurisdictions information was only available from two cities and the estimates were low when compared with the county-supplied data. In response to this situation and recognizing that county agencies implement weed abatement programs for individual cities an assumption was made to account for weed abatement activities conducted for individual cities. Specifically, the county-supplied activity data was increased by 20 percent to account for weed abatement activities conducted for individual cities. Under this scenario, the emissions foregone from this proposed Rule 403 amendment would be approximately 0.018 ton per day. It should be noted that further emission reductions from weed abatement activities from the uncontrolled baseline inventory are expected due to the establishment of a 50 foot visible emissions performance standard, however, the effect of this performance standard has not been

[7] US EPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measure, EPA-450/2-92-004, September 1992.
[8] CARB Area Source Methodology, Section 7.4, January 2003

quantified as it is uncertain as to the amount of weed abatement activities that will be conducted without water.

Wind Monitoring Equipment

The effect on emissions associated with the PAR 403 clarification that wind-monitoring equipment must be located on-site, and operated and maintained in accordance with the performance standards contained in the Rule 403 Implementation Handbook in order to be eligible for a high-wind exemption, has not been quantified as this amendment is proposed to clarify the original intent of the Rule. Additionally, as this proposed clarification is associated with exemption provisions that sources may or may not seek, it would be speculative as to the number of sources that may elect to install wind-monitoring equipment.

Net Emissions Impact

As mentioned above, PM10 emissions reductions from PAR 403 confined animal facility requirements are estimated at 0.13 ton per day. Emissions foregone associated with PAR 403 weed abatement provisions have been estimated to range from 0.015 to 0.018 ton per day. Accordingly, the net impact on emissions from PAR 403 is estimated to result in a net reduction of 0.12 ton of PM10 per day.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The proposed amendment to Rule 403 is considered a "project" as defined by the California Environmental Quality Act (CEQA), and the AQMD is the designated lead agency. Pursuant to the CEQA and AQMD Rule 110, the AQMD will be preparing environmental documentation evaluating any potential significant adverse environmental impacts associated with implementing the proposed amendment to this rule. An environmental impact is defined as an impact to the physical conditions which exist within the area which would be affected by the proposed project.

SOCIOECONOMIC IMPACTS

Staff is preparing a socioeconomic impact assessment for the proposed amendments. The assessment will be available 30 days prior to the hearing.

DRAFT FINDINGS AND COMPARATIVE ANALYSIS

Health and Safety Code Section 40727 requires the AQMD to adopt written findings of necessity, authority, clarity, consistency, non-duplication and reference.

Necessity
A need exists to amend Rule 403 as determined by the record of the rulemaking authority.

Authority

The AQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from California Health & Safety Code Sections 40000, 40001, 40702, and 40725 through 40728, inclusive.

Clarity
The proposed amended rule has been written or displayed so that its meaning can be easily understood by persons directly affected by it.

Consistency
The proposed amended rule is in harmony with and not in conflict with or contrary to, existing statues, court decisions or state or federal regulations.

Non-Duplication
The proposed amended rule does not impose the same requirements as any state or federal regulations. The amendment is necessary and proper to execute the powers and duties granted to, and imposed upon, AQMD.

Reference
By adopting the proposed amended rule, the AQMD Governing Board will be implementing, interpreting, and making specific the provisions of the California Health & Safety Code Section 40001 (rules to achieve ambient air quality standards).

Alternative Control Measures - Health and Safety Code Section 40440.5, subsection (c)(3) requires an analysis of alternative control measures. PAR 403 requirements are primarily performance-oriented and allow any available technology that can meet the applicable performance standards. Accordingly, an alternative control measure analysis is not warranted for PAR 403 requirements.

Draft Comparative Analysis

Health and Safety Code §§40727.2 requires a written analysis comparing the proposed rule with existing regulations. Health and Safety Code §§40727.2, subsection (c) and (d) further require the analysis to review averaging provisions, operating parameters, work practice requirements, and monitoring, reporting and recordkeeping requirements associated with existing applicable rules and proposed regulations.

As mentioned PAR 403 removes the current exemption for confined animal facilities from the property line standard and requires Table 4 CMPs. Additionally, PAR 403 amends the exemption provisions for weed abatement activities and clarifies that wind-monitoring equipment must be located on-site and operated and maintained in accordance with the Rule 403 Implementation Handbook performance standards. Table 4 below identifies other AQMD rules that apply to the sources subject to PAR 403. Footnotes explain the differences between proposed Rule 403 amendments and the other AQMD Rules where relevant.

Table 4
Comparison of PAR 403 and other AQMD Rules

Rule	Source	Emission Reductions / Limits (footnotes provide comparison with PAR 403 requirements)	Averaging Procedures (Units), Work Practices, Operating Provisions	Monitoring, Recordkeeping, Reporting, Test Methods
AQMD 401 (Visible Emissions)	Any single source of emissions; would include exhaust stack emissions.	Prohibits excess visible emissions.[9]	20 percent opacity can not be exceeded three minutes in any hour, cumulatively.	Test method based on opacity as determined by Ringlemann chart or U.S. EPA Method 9.
AQMD 402 (Nuisance)	Any source	Prohibits public nuisance caused by emissions of air contaminants.[10]	None	None specified.
AQMD 404 (Particulate Matter – Concentration)	Applicable to any source	Prohibits discharge of particulate matter in excess of certain rates.[11]	Based on grains per cubic foot of air stream.	None specified.
AQMD 405 (Solid Particulate Matter – Weight)	Applies to any source	Prohibits discharge of particulate matter weight in excess of specified rates.[12]	Establishes maximum discharge rate (lbs./hr.) based on process weight per hour.	None specified.
State H & S Code 41701	Applicable to any source.	Prohibits discharge of excessive visible emissions.[13]	40 percent opacity can not be exceeded three minutes in any hour, cumulatively.	Test methods - Ringlemann chart or U.S. EPA Method 9.
Federal	No regulations identified.	No regulations identified.	No regulations identified.	No regulations identified.

[9] PAR 403 limits sources to no visible emissions crossing any property line and requires implementation of conservation management practices for confined animal facilities. Agricultural operations, including confined animal facilities, are exempt from Rule 401.

[10] Rule 402 provisions are implemented primarily in response to public complaints. PAR 403 requirements are applicable regardless of whether public complaints are filed.

[11] This Rule is used in conjunction with the AQMD's permitting system for point sources of air pollution. Fugitive dust sources subject to PAR 403 requirements are not subject to AQMD permits.

[12] Under Rule 405, point source emissions are addressed through the permit evaluation process. VOC emissions associated with larger confined animal facilities will be subject to AQMD permitting actions, however, confined animal facility fugitive dust sources as addressed by PAR 403 requirements are not subject to the AQMD's permitting system.

[13] PAR 403 limits sources to no visible emissions crossing any property line and requires confined animal facilities to implement conservation management practices. Agricultural operations, including confined animal facilities, are exempt from Health and Safety Code § 41701.

REFERENCES

South Coast Air Quality Management District, 2003 Air Quality Management Plan (AQMP), August 2003.

APPENDIX A
PROPOSED AMENDED RULE 403

(Adopted May 7, 1976) (Amended November 6, 1992)
(Amended July 9, 1993) (Amended February 14, 1997)
(Amended December 11, 1998)(Amended April 2, 2004)

Proposed Amended Rule 403 - March 15, 2005

RULE 403. FUGITIVE DUST

(a) Purpose

The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

(b) Applicability

The provisions of this Rule shall apply to any activity or man-made condition capable of generating fugitive dust.

(c) Definitions

(1) ACTIVE OPERATIONS means any source capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, disturbed surface area, or heavy- and light-duty vehicular movement.

(2) AGGREGATE-RELATED PLANTS are defined as facilities that produce and / or mix sand and gravel and crushed stone.

(3) AGRICULTURAL HANDBOOK means the region-specific guidance document that has been approved by the Governing Board or hereafter approved by the Executive Officer and the U.S. EPA. For the South Coast Air Basin, the Board-approved region-specific guidance document is the Rule 403 Agricultural Handbook dated December 1998. For the Coachella Valley, the Board-approved region-specific guidance document is the Rule 403 Coachella Valley Agricultural Handbook dated April 2, 2004.

(4) ANEMOMETERS are devices used to measure wind speed and direction in accordance with the performance standards, and maintenance and calibration criteria as contained in the most recent Rule 403 Implementation Handbook.

(5) BEST AVAILABLE CONTROL MEASURES means fugitive dust control actions that are set forth in Table 1 of this Rule.

(6) BULK MATERIAL is sand, gravel, soil, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.

(7) CEMENT MANUFACTURING FACILITY is any facility that has a cement kiln at the facility.

(8) CHEMICAL STABILIZERS are any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation. The chemical stabilizers shall meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.

(9) COMMERCIAL POULTRY RANCH means any building, structure, enclosure, or premises where more than 100 poultry are kept or maintained for the primary purpose of producing poultry, eggs, or meat for sale or other distribution.

(10) CONFINED ANIMAL FACILITY means a source or group of sources of air pollution at an agricultural source for the raising of 3,360 or more fowl or 50 or more animals, including but not limited to, any structure, building, installation, farm, corral, coop, feed storage area, milking parlor, or system for the collection, storage, or distribution of solid and liquid manure; if domesticated animals, including horses, sheep, goats, swine, beef cattle, rabbits, chickens, turkeys, or ducks corralled, penned, or otherwise caused to remain in restricted areas for commercial agricultural purposes and feeding is by means other than grazing.

(11 ~~9~~) CONSTRUCTION/DEMOLITION ACTIVITIES means any on-site mechanical activities conducted in preparation of, or related to, the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities: grading, excavation, loading, crushing, cutting, planing, shaping or ground breaking.

(12 ~~10~~) CONTRACTOR means any person who has a contractual arrangement to conduct an active operation for another person.

(13) DAIRY FARM is an operation on a property, or set of properties that are contiguous or separated only by a public right-of-way, that raises cows or

produces milk from cows for the purpose of making a profit or for a livelihood. Heifer and calf farms are included in this definition of dairy farms.

(14 ~~11~~) DISTURBED SURFACE AREA means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas which have:

(A) been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions;

(B) been paved or otherwise covered by a permanent structure; or

(C) sustained a vegetative ground cover of at least 70 percent of the native cover for a particular area for at least 30 days.

(15 ~~12~~) DUST SUPPRESSANTS are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.

(16 ~~13~~) EARTH-MOVING ACTIVITIES means the use of any equipment for any activity where soil is being moved or uncovered, and shall include, but not be limited to the following: grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, weed abatement through disking, and soil mulching.

(17 ~~14~~) DUST CONTROL SUPERVISOR means a person with the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule 403 requirements at an active operation.

(18 ~~15~~) FUGITIVE DUST means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of any person.

(19 ~~16~~) HIGH WIND CONDITIONS means that instantaneous wind speeds exceed 25 miles per hour.

(20 ~~17~~) INACTIVE DISTURBED SURFACE AREA means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of 20 consecutive days.

(21 ~~18~~) LARGE OPERATIONS means any active operations on property which contains 50 or more acres of disturbed surface area; or any earth-moving

operation with a daily earth-moving or throughput volume of 3,850 cubic meters (5,000 cubic yards) or more three times during the most recent 365-day period.

(22 ~~19~~) OPEN STORAGE PILE is any accumulation of bulk material, which is not fully enclosed, covered or chemically stabilized, and which attains a height of three feet or more and a total surface area of 150 or more square feet.

(23 ~~20~~) PARTICULATE MATTER means any material, except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions.

(24 ~~21~~) PAVED ROAD means a public or private improved street, highway, alley, public way, or easement that is covered by typical roadway materials, but excluding access roadways that connect a facility with a public paved roadway and are not open to through traffic. Public paved roads are those open to public access and that are owned by any federal, state, county, municipal or any other governmental or quasi-governmental agencies. Private paved roads are any paved roads not defined as public.

(25 ~~22~~) PM_{10} means particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by the applicable State and Federal reference test methods.

(26 ~~23~~) PROPERTY LINE means the boundaries of an area in which either a person causing the emission or a person allowing the emission has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all sub-tenancies.

(27 ~~24~~) RULE 403 IMPLEMENTATION HANDBOOK means a guidance document that has been approved by the Governing Board on April 2, 2004 or hereafter approved by the Executive Officer and the U.S. EPA.

(28 ~~25~~) SERVICE ROADS are paved or unpaved roads that are used by one or more public agencies for inspection or maintenance of infrastructure and which are not typically used for construction-related activity.

(29 ~~26~~) SIMULTANEOUS SAMPLING means the operation of two PM_{10} samplers in such a manner that one sampler is started within five minutes of the other, and each sampler is operated for a consecutive period which must be not less than 290 minutes and not more than 310 minutes.

(30 ~~27~~) SOUTH COAST AIR BASIN means the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County as defined in California Code of Regulations, Title 17, Section 60104. The area is bounded on the west by the Pacific Ocean, on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains, and on the south by the San Diego county line.

(31 ~~28~~) STABILIZED SURFACE means any previously disturbed surface area or open storage pile which, through the application of dust suppressants, shows visual or other evidence of surface crusting and is resistant to wind-driven fugitive dust and is demonstrated to be stabilized. Stabilization can be demonstrated by one or more of the applicable test methods contained in the Rule 403 Implementation Handbook.

(32 ~~29~~) TRACK-OUT means any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

(33 ~~30~~) TYPICAL ROADWAY MATERIALS means concrete, asphaltic concrete, recycled asphalt, asphalt, or any other material of equivalent performance as determined by the Executive Officer, and the U.S. EPA.

(34 ~~31~~) UNPAVED ROADS means any unsealed or unpaved roads, equipment paths, or travel ways that are not covered by typical roadway materials. Public unpaved roads are any unpaved roadway owned by federal, state, county, municipal or other governmental or quasi-governmental agencies. Private unpaved roads are all other unpaved roadways not defined as public.

(35 ~~32~~) VISIBLE ROADWAY DUST means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

(36 ~~33~~) WIND-DRIVEN FUGITIVE DUST means visible emissions from any disturbed surface area which is generated by wind action alone.

(37 ~~34~~) WIND GUST is the maximum instantaneous wind speed as measured by an anemometer.

(d) Requirements

(1) No person shall cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that:

(A) the dust remains visible in the atmosphere beyond the property line of the emission source; or

(B) the dust emission exceeds 20 percent opacity (as determined by the appropriate test method included in the Rule 403 Implementation Handbook), if the dust emission is the result of movement of a motorized vehicle.

(2) No person shall conduct active operations without utilizing the applicable best available control measures included in Table 1 of this Rule to minimize fugitive dust emissions from each fugitive dust source type within the active operation.

(3) No person shall cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM_{10} monitoring. If sampling is conducted, samplers shall be:

(A) Operated, maintained, and calibrated in accordance with 40 Code of Federal Regulations (CFR), Part 50, Appendix J, or appropriate U.S. EPA-published documents for U.S. EPA-approved equivalent method(s) for PM_{10}.

(B) Reasonably placed upwind and downwind of key activity areas and as close to the property line as feasible, such that other sources of fugitive dust between the sampler and the property line are minimized.

(4) No person shall allow track-out to extend 25 feet or more in cumulative length from the point of origin from an active operation. Notwithstanding the preceding, all track-out from an active operation shall be removed at the conclusion of each workday or evening shift.

(5) ~~After January 1, 2005, n~~ No person shall conduct an active operation with a disturbed surface area of five or more acres, or with a daily import or export of 100 cubic yards or more of bulk material without utilizing at least one of the measures listed in subparagraphs (d)(5)(A) through (d)(5)(E) at each vehicle egress from the site to a paved public road.

(A) Install a pad consisting of washed gravel (minimum-size: one inch) maintained in a clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long.

(B) Pave the surface extending at least 100 feet and at least 20 feet wide.

(C) Utilize a wheel shaker/wheel spreading device consisting of raised dividers (rails, pipe, or grates) at least 24 feet long and 10 feet wide to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.

(D) Install and utilize a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.

(E) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the actions specified in subparagraphs (d)(5)(A) through (d)(5)(D).

(6) Beginning January 1, 2006, any person who operates or authorizes the operation of a confined animal facility subject to this Rule shall implement the applicable conservation management practices specified in Table 4 of this Rule.

(e) Additional Requirements for Large Operations

(1) Any person who conducts or authorizes the conducting of a large operation subject to this Rule shall implement the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards can not be met through use of Table 2 actions; and shall:

(A) submit a fully executed Large Operation Notification (Form 403 N) to the Executive Officer within 7 days of qualifying as a large operation;

(B) include, as part of the notification, the name(s), address(es), and phone number(s) of the person(s) responsible for the submittal, and a description of the operation(s), including a map depicting the location of the site;

(C) maintain daily records to document the specific dust control actions taken, maintain such records for a period of not less than three years; and make such records available to the Executive Officer upon request;

(D) ~~after January 1, 2005, i~~ Install and maintain project signage with project contact signage that meets the minimum standards of the Rule 403 Implementation Handbook, prior to initiating any earthmoving activities;

(E) ~~after January 1, 2005, i~~ Identify a dust control supervisor that:

(i) is employed by or contracted with the property owner or developer;

(ii) is on the site or available on-site within 30 minutes during working hours;

(iii) has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule requirements;

(iv) has completed the AQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class; and

(F) notify the Executive Officer in writing within 30 days after the site no longer qualifies as a large operation as defined by paragraph (c)(18).

(2) Any Large Operation Notification submitted to the Executive Officer or AQMD-approved dust control plan shall be valid for a period of one year from the date of written acceptance by the Executive Officer. Any Large Operation Notification accepted pursuant to paragraph (e)(1), excluding those submitted by aggregate-related plants and cement manufacturing facilities must be resubmitted annually by the person who conducts or authorizes the conducting of a large operation, at least 30 days prior to the expiration date, or the submittal shall no longer be valid as of the expiration date. If all fugitive dust sources and corresponding control measures or special circumstances remain identical to those identified in the previously accepted submittal or in an AQMD-approved dust control plan, the resubmittal may be a simple statement of no-change (Form 403NC).

(f) Compliance Schedule

The newly amended provisions of this Rule shall become effective upon adoption. Pursuant to subdivision (e), any existing site that qualifies as a large operation will have 60 days from the date of Rule adoption to comply with the notification and

recordkeeping requirements for large operations. Any Large Operation Notification or AQMD-approved dust control plan which has been accepted prior to the date of adoption of these amendments shall remain in effect and the Large Operation Notification or AQMD-approved dust control plan annual resubmittal date shall be one year from adoption of this Rule amendment.

(g) Exemptions

(1) The provisions of this Rule shall not apply to:

(A) Dairy farms.

(B) Confined animal facilities provided that the combined disturbed surface area within one continuous property line not separated by a paved public road is 1 acre or less.

(C ~~A~~) Agricultural operations ~~directly related to the raising of fowls or animals and agricultural operations,~~ provided that the combined disturbed surface area within one continuous property line and not separated by a paved public road is 10 acres or less.

(D ~~B~~) Agricultural operations within the South Coast Air Basin, whose combined disturbed surface area includes more than 10 acres provided that the person responsible for such operations:

(i) voluntarily implements the conservation management practices contained in the Rule 403 Agricultural Handbook;

(ii) completes and maintains the self-monitoring form documenting sufficient conservation management practices, as described in the Rule 403 Agricultural Handbook; and

(iii) makes the completed self-monitoring form available to the Executive Officer upon request.

(E ~~C~~) Agricultural operations outside the South Coast Air Basin~~, until January 1, 2005,~~ whose combined disturbed surface area includes more than 10 acres provided that the person responsible for such operations:

(i) voluntarily implements the conservation management practices contained in the Rule 403 Coachella Valley Agricultural Handbook; and

(ii) completes and maintains the self-monitoring form documenting sufficient conservation management practices,

as described in the Rule 403 Coachella Valley Agricultural Handbook; and

(iii) makes the completed self-monitoring form available to the Executive Officer upon request.

(F ~~D~~) Active operations conducted during emergency life-threatening situations, or in conjunction with any officially declared disaster or state of emergency.

(G ~~E~~) Active operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and sewer during periods of service outages and emergency disruptions.

(H ~~F~~) Any contractor subsequent to the time the contract ends, provided that such contractor implemented the required control measures during the contractual period.

(I ~~G~~) Any grading contractor, for a phase of active operations, subsequent to the contractual completion of that phase of earth-moving activities, provided that the required control measures have been implemented during the entire phase of earth-moving activities, through and including five days after the final grading inspection.

(J ~~H~~) Weed abatement operations ordered by a county agricultural commissioner or any state, county, or municipal fire department, provided that:

(i) mowing, cutting or other similar process is used which maintains weed stubble at least three inches above the soil; and

(ii) any discing or similar operation which cuts into and disturbs the soil, where watering is used prior to initiation of these activities unless all of the following conditions are met:

(I) written documentation is provided to the Executive Officer upon request by the agency issuing the weed abatement order that clearly indicates the technical reasons (i.e., physical obstructions, slope conditions, safety factors) why watering prior to discing is not feasible; and

(II) wind speeds are less than 25 miles per hour during weed abatement activities; and

(III) measures, including, not limited to, vehicle speed reduction, disc shrouds, or disc setting adjustments are used as necessary to prevent visible dust emissions from exceeding 50 feet from the source in any direction; and

(IV) after weed abatement activities have ceased, the disturbed surface is resistant to wind driven fugitive dust or achieves a flat vegetative cover of attached or rooted vegetation or unattached vegetative debris of 50 percent or greater using the flat vegetative cover test method as included in the Rule 403 Implementation Handbook.

~~, where watering is used prior to initiation of these activities and a determination is made by the agency issuing the weed abatement order that, due to fire hazard conditions, rocks, or other physical obstructions, it is not practical to meet the conditions specified in clause (g)(1)(H)(i). The provisions this clause shall not exempt the owner of any property from stabilizing, in accordance with paragraph (d)(2), disturbed surface areas which have been created as a result of the weed abatement actions.~~

(K ~~I~~) sandblasting operations.

(2) The provisions of paragraphs (d)(1) and (d)(3) shall not apply:

(A) When wind gusts exceed 25 miles per hour, provided that:

(i) The required Table 3 contingency measures in this Rule are implemented for each applicable fugitive dust source type, and;

(ii) records are maintained in accordance with subparagraph (e)(1)(C)~~.~~, and;

(iii) wind gusts over 25 miles per hour are evidenced/proven by a data logger on an on-site anemometer that is located on-site at that time, and meets all the specifications of the Rule 403 Implementation Handbook.

(B) To unpaved roads, provided such roads:

(i) are used solely for the maintenance of wind-generating equipment; or

(ii) are unpaved public alleys as defined in Rule 1186; or

(iii) are service roads that meet all of the following criteria:

(a) are less than 50 feet in width at all points along the road;

(b) are within 25 feet of the property line; and

(c) have a traffic volume less than 20 vehicle-trips per day.

(C) To any active operation, open storage pile, or disturbed surface area for which necessary fugitive dust preventive or mitigative actions are in conflict with the federal Endangered Species Act, as determined in writing by the State or federal agency responsible for making such determinations.

(3) The provisions of (d)(2) shall not apply to any aggregate-related plant or cement manufacturing facility that implements the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards of paragraphs (d)(1) and (d)(3) can not be met through use of Table 2 actions.

(4) The provisions of paragraphs (d)(1), (d)(2), and (d)(3) shall not apply to:

(A) Blasting operations which have been permitted by the California Division of Industrial Safety; and

(B) Motion picture, television, and video production activities when dust emissions are required for visual effects. In order to obtain this exemption, the Executive Officer must receive notification in writing at least 72 hours in advance of any such activity and no nuisance results from such activity.

(5) The provisions of paragraph (d)(3) shall not apply if the dust control actions, as specified in Table 2, are implemented on a routine basis for each applicable fugitive dust source type. To qualify for this exemption, a person must maintain records in accordance with subparagraph (e)(1)(C).

(6) The provisions of paragraph (d)(4) shall not apply to earth coverings of public paved roadways where such coverings are approved by a local government agency for the protection of the roadway, and where such coverings are used as roadway crossings for haul vehicles provided that

such roadway is closed to through traffic and visible roadway dust is removed within one day following the cessation of activities.

(7) The provisions of subdivision (e) shall not apply to:

(A) officially-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, state recreational areas, and county regional parks.

(B) any large operation which is required to submit a dust control plan to any city or county government which has adopted a District-approved dust control ordinance.

(C) any large operation subject to Rule 1158, which has an approved dust control plan pursuant to Rule 1158, provided that all sources of fugitive dust are included in the Rule 1158 plan.

(8) The provisions of subparagraph (e)(1)(A) through (e)(1)(C) shall not apply to any large operation with an AQMD-approved fugitive dust control plan provided that there is no change to the sources and controls as identified in the AQMD-approved fugitive dust control plan.

(h) Fees

Any person conducting active operations for which the Executive Officer conducts upwind/downwind monitoring for PM_{10} pursuant to paragraph (d)(3) shall be assessed applicable Ambient Air Analysis Fees pursuant to Rule 304.1. Applicable fees shall be waived for any facility which is exempted from paragraph (d)(3) or meets the requirements of paragraph (d)(3).

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Backfilling	01-1 Stabilize backfill material when not actively handling; and 01-2 Stabilize backfill material during handling; and 01-3 Stabilize soil at completion of activity.	✓ Mix backfill soil with water prior to moving ✓ Dedicate water truck or high capacity hose to backfilling equipment ✓ Empty loader bucket slowly so that no dust plumes are generated ✓ Minimize drop height from loader bucket
Clearing and grubbing	02-1 Maintain stability of soil through pre-watering of site prior to clearing and grubbing; and 02-2 Stabilize soil during clearing and grubbing activities; and 02-3 Stabilize soil immediately after clearing and grubbing activities.	✓ Maintain live perennial vegetation where possible ✓ Apply water in sufficient quantity to prevent generation of dust plumes
Clearing forms	03-1 Use water spray to clear forms; or 03-2 Use sweeping and water spray to clear forms; or 03-3 Use vacuum system to clear forms.	✓ Use of high pressure air to clear forms may cause exceedance of Rule requirements
Crushing	04-1 Stabilize surface soils prior to operation of support equipment; and 04-2 Stabilize material after crushing.	✓ Follow permit conditions for crushing equipment ✓ Pre-water material prior to loading into crusher ✓ Monitor crusher emissions opacity ✓ Apply water to crushed material to prevent dust plumes

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Cut and fill	05-1 Pre-water soils prior to cut and fill activities; and 05-2 Stabilize soil during and after cut and fill activities.	✓ For large sites, pre-water with sprinklers or water trucks and allow time for penetration ✓ Use water trucks/pulls to water soils to depth of cut prior to subsequent cuts
Demolition – mechanical/manual	06-1 Stabilize wind erodible surfaces to reduce dust; and 06-2 Stabilize surface soil where support equipment and vehicles will operate; and 06-3 Stabilize loose soil and demolition debris; and 06-4 Comply with AQMD Rule 1403.	✓ Apply water in sufficient quantities to prevent the generation of visible dust plumes
Disturbed soil	07-1 Stabilize disturbed soil throughout the construction site; and 07-2 Stabilize disturbed soil between structures	✓ Limit vehicular traffic and disturbances on soils where possible ✓ If interior block walls are planned, install as early as possible ✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes
Earth-moving activities	08-1 Pre-apply water to depth of proposed cuts; and 08-2 Re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction; and 08-3 Stabilize soils once earth-moving activities are complete.	✓ Grade each project phase separately, timed to coincide with construction phase ✓ Upwind fencing can prevent material movement on site ✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Importing/exporting of bulk materials	09-1 Stabilize material while loading to reduce fugitive dust emissions; and 09-2 Maintain at least six inches of freeboard on haul vehicles; and 09-3 Stabilize material while transporting to reduce fugitive dust emissions; and 09-4 Stabilize material while unloading to reduce fugitive dust emissions; and 09-5 Comply with Vehicle Code Section 23114.	✓ Use tarps or other suitable enclosures on haul trucks ✓ Check belly-dump truck seals regularly and remove any trapped rocks to prevent spillage ✓ Comply with track-out prevention/mitigation requirements ✓ Provide water while loading and unloading to reduce visible dust plumes
Landscaping	10-1 Stabilize soils, materials, slopes	✓ Apply water to materials to stabilize ✓ Maintain materials in a crusted condition ✓ Maintain effective cover over materials ✓ Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slopes ✓ Hydroseed prior to rain season
Road shoulder maintenance	11-1 Apply water to unpaved shoulders prior to clearing; and 11-2 Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance.	✓ Installation of curbing and/or paving of road shoulders can reduce recurring maintenance costs ✓ Use of chemical dust suppressants can inhibit vegetation growth and reduce future road shoulder maintenance costs

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Screening	12-1 Pre-water material prior to screening; and 12-2 Limit fugitive dust emissions to opacity and plume length standards; and 12-3 Stabilize material immediately after screening.	✓ Dedicate water truck or high capacity hose to screening operation ✓ Drop material through the screen slowly and minimize drop height ✓ Install wind barrier with a porosity of no more than 50% upwind of screen to the height of the drop point
Staging areas	13-1 Stabilize staging areas during use; and 13-2 Stabilize staging area soils at project completion.	✓ Limit size of staging area ✓ Limit vehicle speeds to 15 miles per hour ✓ Limit number and size of staging area entrances/exists
Stockpiles/ Bulk Material Handling	14-1 Stabilize stockpiled materials. 14-2 Stockpiles within 100 yards of off-site occupied buildings must not be greater than eight feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage.	✓ Add or remove material from the downwind portion of the storage pile ✓ Maintain storage piles to avoid steep sides or faces

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Traffic areas for construction activities	15-1 Stabilize all off-road traffic and parking areas; and 15-2 Stabilize all haul routes; and 15-3 Direct construction traffic over established haul routes.	✓ Apply gravel/paving to all haul routes as soon as possible to all future roadway areas ✓ Barriers can be used to ensure vehicles are only used on established parking areas/haul routes
Trenching	16-1 Stabilize surface soils where trencher or excavator and support equipment will operate; and 16-2 Stabilize soils at the completion of trenching activities.	✓ Pre-watering of soils prior to trenching is an effective preventive measure. For deep trenching activities, pre-trench to 18 inches soak soils via the pre-trench and resuming trenching ✓ Washing mud and soils from equipment at the conclusion of trenching activities can prevent crusting and drying of soil on equipment
Truck loading	17-1 Pre-water material prior to loading; and 17-2 Ensure that freeboard exceeds six inches (CVC 23114)	✓ Empty loader bucket such that no visible dust plumes are created ✓ Ensure that the loader bucket is close to the truck to minimize drop height while loading
Turf Overseeding	18-1 Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plume length standards; and 18-2 Cover haul vehicles prior to exiting the site.	✓ Haul waste material immediately off-site

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Unpaved roads/parking lots	19-1 Stabilize soils to meet the applicable performance standards; and 19-2 Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots.	✓ Restricting vehicular access to established unpaved travel paths and parking lots can reduce stabilization requirements
Vacant land	20-1 In instances where vacant lots are 0.10 acre or larger and have a cumulative area of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle and/or off-road vehicle trespassing, parking and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees or other effective control measures.	

Table 2
DUST CONTROL MEASURES FOR LARGE OPERATIONS

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS	
Earth-moving (except construction cutting and filling areas, and mining operations)	(1a)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR
	(1a-1)	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill areas:	(1b)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.

Table 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Earth-moving: Construction cut areas and mining operations:	(1c)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	(2c)	Apply chemical stabilizers within five working days of grading completion; OR
	(2d)	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a)	Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR
	(3b)	Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	(3c)	Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	(3d)	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

Table 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Unpaved Roads	(4a)	Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	(5a)	Apply chemical stabilizers; OR
	(5b)	Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR
	(5c)	Install temporary coverings; OR
	(5d)	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile. This option may only be used at aggregate-related plants or at cement manufacturing facilities.
All Categories	(6a)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.

TABLE 3
CONTINGENCY CONTROL MEASURES FOR LARGE OPERATIONS

FUGITIVE DUST SOURCE CATEGORY	CONTROL MEASURES
Earth-moving	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR (1B) Apply chemical stabilizers prior to wind event; OR (2B) Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR (3B) Take the actions specified in Table 2, Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	(1C) Apply chemical stabilizers prior to wind event; OR (2C) Apply water twice per hour during active operation; OR (3C) Stop all vehicular traffic.
Open storage piles	(1D) Apply water twice per hour; OR (2D) Install temporary coverings.
Paved road track-out	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	(1F) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

Table 4
(Conservation Management Practices for Confined Animal Facilities)

SOURCE CATEGORY	CONSERVATION MANAGEMENT PRACTICES	
Manure Handling **(Only applicable to Commercial Poultry Ranches)**	(1a)	Cover manure prior to removing material off-site; AND
	(1b)	Spread the manure before 11:00 AM and when wind conditions are less than 25 miles per hour; AND
	(1c)	Utilize the coning and drying manure management method by removing manure at laying hen houses at least twice per year and maintain a base of no less than 6 inches of dry manure after clean out; OR
	(1d)	Utilize the frequent manure removal method by removing the manure from laying hen houses at least every seven days and immediately thin bed dry the material.
Feedstock Handling	(2a)	Utilize a sock or boot on the feed truck auger when filling feed storage bins.
Disturbed Surfaces	(3a)	Maintain at least 70 percent vegetative cover on vacant portions of the facility; OR
	(3b)	Utilize conservation tillage practices to manage the amount, orientation and distribution of crop and other plant residues on the soil surface year-round, while growing crops (if applicable) in narrow slots or tilled strips; OR
	(3c)	Apply dust suppressants in sufficient concentrations and frequencies to maintain a stabilized surface.
Unpaved Roads	(4a)	Restrict access to private unpaved roads either through signage or physical access restrictions and control vehicular speeds to no more than 15 miles per hour through worker notifications, signage, or any other necessary means; OR
	(4b)	Cover frequently traveled unpaved roads with low silt content material (i.e., asphalt, concrete, recycled road base, or gravel to a minimum depth of four inches); OR
	(4c)	Treat unpaved roads with water, mulch, chemical dust suppressants or other cover to maintain a stabilized surface.
Equipment Parking Areas	(5a)	Apply water or chemical dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	(5b)	Apply material with low silt content (i.e., asphalt, concrete, recycled road base, or gravel to a depth of four inches); OR
	(5c)	Reduce equipment parking area by at least 50 percent from the original disturbed surface area and treat the original disturbed surface area with vegetation, water that establishes a crust, or chemical stabilization such that the area is a stabilized surface.

APPENDIX B
FLAT VEGETATION TEST METHOD

Flat Vegetation Test Method*

Equipment:

- 100-foot measuring tape
- Two screwdrivers
- 3/32 inch diameter brazing rod or wooden dowel
- Pencil/Pen and paper

Introduction:

This test method examines the protection of flat vegetation against wind erosion on disturbed surfaces. Flat vegetation includes rooted vegetation or unattached vegetative debris lying horizontally on a surface. It can be alive or dead, but wind must not be able to move it or blow it away. Examples include flat, low-lying plants, horizontally flattened grass, or clumps of hay that are bunched. The purpose of this test is to estimate the percent cover of flat vegetation on a disturbed surface to see whether it sufficiently protects against windblown dust.

Determination Of Flat Vegetative Cover

Flat vegetation includes attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind. Flat vegetation, which is dead but firmly attached, shall be considered equally protective as live vegetation. Stones or other aggregate larger than 1 centimeter in diameter shall be considered protective cover in the course of conducting the line transect test method. Where flat vegetation exists, conduct the following line transect test method.

Line Transect Test Method

Stretch a 100 foot measuring tape across a survey area that represents a random portion of the overall conditions of the site. Firmly anchor both ends of the measuring tape into the surface using a tool such as a screwdriver, with the tape stretched taut and close to the soil surface. If vegetation exists in regular rows, place the tape diagonally (at approximately a 45° angle) away from a parallel or perpendicular position to the vegetated rows. Pinpoint an area the size of a 3/32 inch diameter brazing rod or wooden dowel centered above each 1 foot interval mark along one edge of the tape. Count the number of times that flat vegetation lies directly underneath the pinpointed area at 1 foot intervals. Consistently observe the underlying surface from a 90° angle directly above each pinpoint on one side of the tape. Do not count the underlying surface as vegetated if any portion of the pinpoint extends beyond the edge of the vegetation underneath in any direction. If clumps of vegetation or vegetative debris lie underneath the pinpointed area, count the surface as vegetated, unless bare soil is visible directly below the pinpointed area. When 100 observations have been made, add together the number of times a surface was counted as vegetated. This total represents the percent of flat vegetation cover (e.g., if 50 positive counts were made, then vegetation cover is 50%). If the survey area that represents a random portion of the overall conditions of the site is too small for 100 observations, make as many observations as

possible. Then multiply the count of vegetated surface areas by the appropriate conversion factor to obtain percent cover. For example, if vegetation was counted 30 times within a total of 50 observations, divide 30 by 50 and multiply by 100 to obtain a flat vegetation cover of 60%.

Conduct the line transect test method, as described above, an additional two times on areas that represent a random portion of the overall conditions of the site and average results.

*University of Nebraska Cooperative Extension, Institute of Agriculture and Natural Resources

APPENDIX C

PM10 Emissions from Confined Animal Facilities

PM10 Fugitive Dust Emissions (Unpaved Roads)

	Emission Factor[1] (lbs PM10/VMT - CARB)	Inventory[2] (VMT)	Emissions (t/yr)	Emissions (t/d)			
Riverside	2.27	17250	19.58	0.054			
San Bernardino	2.27	19500	22.13	0.061			
Orange	2.27	N/A					
LA	2.27	N/A					
				0.114	**t/d**	0.057	**t/d**
						17.142	t/yr

PM10 Fugitive Dust Emissions (Windblown Disturbed)

	Emission Factor[3] (lbs PM10/acre/yr - CARB)	Inventory[4] (Acreage)	Emissions (t/yr)	Emissions (t/d)			
Riverside	868	46	19.96	0.055			
San Bernardino	1333	52	34.66	0.095			
Orange		N/A					
LA		N/A					
				0.150	**t/d**	0.075	**t/d**
				0.264	**total t/d**	27.311	t/yr

Notes:

1 CARB Area Source Methodology, Section 7.11 Unpaved Road Dust Farm Roads, August 1997.

2 Each facility (23 RVC and 26 SB) has one-quarter mile of unpaved road with an average daily traffic level of 10 on 300 working days per year

[# of facilities/County x 0.25 mile x 10 trips per day x 300 working days = VMT (vehicle miles traveled)]

3 CARB Area Source Methodology, Section 7.13 Windblown Dust - Unpaved Roads, August 1997.

4 Each facility (23 RVC and 26 SB) has an average of 2 acres of disturbed surfaces

[# of facilities/County x acres of disturbed surfaces = total acreage of disturbed surfaces]

Total Emissions Reductions	
0.132	**t/d**
44.453	t/yr

APPENDIX D

PAR 403 Poultry Facility Conservation Management Practice Cost-Effectiveness

Number of affected facilities

Riverside	23
San Bernardino	26

Cost assumptions:

Speed/tresspass control[1]	Two installed signs	400	
(signage)	Useful life (years)	8	
	Interest rate - 4%		
	Capital recovery factor	0.149	
	Annualized cost	60	$ / facility
Chemical stabilizer[1]	Purchase/application	5340	$ / acre
Unpaved road gravel[2]	Purchase/application	7820	$ / quarter mile
	Useful life (years)	3	
	Interest rate - 4%		
	Capital recovery factor	0.36	
	Annualized cost	2815	$ / facility
Revegetation[3]		112	$ / acre

Conservation management practice assumptions:

Unpaved roads	# of Facilities	Costs	
Signage	49	2920	
Gravel	16	45043	
Distrurbed surface areas (98 acres total)	# of Acres		
Revegetatation	68	7616	
Chemical stabilization	30	160200	
		215780	$ for affected facilities

PAR 403 conservation management practice emission reductions	45	tons per year
(Appendix C - 50 percent reduction through combination of practices)		
	4795	$ / ton PM10 reduced

Notes:

1 San Joaquin Unified Air Pollution Control District, PM10 State Implementation Plan, 2003

2 Nancy Von Muegge, Vulcan Materials, personal communication with Kathy Stevens, March, 2005

3 South Coast Air Quality Management District, Final Revised Rule 403 Staff Report, February 1997. (costs increased from 1996 $ to 2004 $ using a deflator of 1.12)

APPENDIX E

PM10 Emissions from Weed Abatement Activities

Discing

County	Time Period	Acres Disced	PM10 Emission Factor (lbs./ac.)[1]	Total PM10 Emissions (tons)	PM10 Emissions (t/d)[2]
Riverside	July-September	9500	1.2	5.70	0.02
San Bernardino[3]	Spring-Summer	5700	1.2	3.42	0.01
Orange[4]	May - September	114	1.2	0.07	0.0002
Los Angeles[5]	Spring-Summer	2842	1.2	1.71	0.005
				10.89	0.03

Mowing[6]

Riverside	July-September	175
San Bernardino	Spring-Summer	1600
San Bernardino	Fall	2800
Orange	Spring-Summer	64
Los Angeles	Spring-Summer	323

Notes:

1 ARB Area Source Methodology, Section 7.4, January 2003

2 tons per day

3 Includes work done in the Cities of Ontario, Rancho Cucamonga, Highland, Grand Terrace

4 County discs 5% of affected parcels (total 6 acres). Reminder conducted by property owners. Estimate raised accordingly.

5 Includes work done in the Cities and Communities of Los Angeles, Malibu, Topanga, West Hollywood, Claremont, Covina, Diamond Bar, Glendora, La Verne, Pomona, San Dimas Walnut, City Terrace, Commerce, E. Los Angeles, Hacienda Heights, Industry, La Mirada, La Puente Montebello, Monterey Park, Pico Rivera, Rosemead, Rowland Heights, Santa Fe Springs, S. San Gabriel, Whittier, Artesia, Baldwin Hills, Bell, Bell Gardens, Bellflower, Carson, Catalina Island, Cerritos, Cudahy, Hawaiian Gardens, Ladera Heights, Lakewood, Lawndale, Lennox, Lomita, Marina del Rey, Maywood, Norwalk, Palos Verdes Estates, Paramount, Rancho Palos Verdes, Rolling Hills, Rolling Hills Estates, Rosewood, Signal Hill, South Gate, Alta Dena, Arcadia, Azusa, Baldwin Park, Bradbury, Duarte, El Monte, Irwindale, La Canada, Flintridge, Monrovia, Montrose, Rosemead, San Gabriel, S. El Monte, S. Pasadena, Temple City, Agoura, Agora Hills, Calabasas, Glendale, Westlake Village, Bouquet Canyon, Canyon Country, Castaic, Chatsworth, Newhall, Santa Clarita

6 No emission factor, not quantified